

# MEDICAL RESEARCH LABORATORY



U.S. Naval Submarine Base  
New London

Vol II, No. 18

REPORT No. 31

1943

Summary and Conclusions,  
Extract from

## EXAMINATION OF THE WILLIAMS LANTERN AS A TEST FOR COLOR VISION

Color Vision Report No. 6

Prepared by  
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Approved: Comdr. C.W. Shilling, (MC) USN  
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New London, Connecticut

22 November 1943

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5 pp	
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AD622184

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The attention of the Bureau of Medicine and Surgery has been called to the fact that the Edridge-Green Lantern for testing color vision is no longer available. The Medical Research Laboratory of the Submarine Base was requested to prepare a report on Project M.V.S. No. X-225, entitled "Test of the Williams Lantern for Color Perception".

SUMMARY

The Williams Lantern was tested on 75 normals and 25 color deficient, using a variety of combinations of size of apertures, numbers of light filters and brightnesses. The total number of judgments was 12,600. Tests were conducted in dark and in light surroundings.

Defective color vision of the observers was scored by using four or more standard tests for color vision: Pseudo-isochromatic tests, Dimmick Anomaloscope, Royal Canadian Navy Lantern, and Farnsworth Dichotomous Test B-20.

RESULTS:

1. Scores were difficult to interpret. Normal observers and moderately color deficient observers made similar responses.
2. Such interpretations as were possible correlated poorly with present standard tests.

3. The machine was found awkward and confusing to operate.

CONCLUSIONS:

The Williams Lantern is entirely unsuited for Navy use.

CONCLUSIONS

The Williams Lantern for testing color vision is not a suitable device for use in the Navy where, because of administrative routine, there are numerous special requirements.

1. Mechanically, the Lantern is not easily manipulated.
2. It is confusing to an inexperienced operator because there are so many possible combinations.
3. There is no way of obtaining a clear "pass" or "fail" score for any particular degree of anomaly.
4. Only extreme cases of color blindness can be immediately detected by the operator or detected by mere inspection of the score.
5. The ordinary and common degrees of color anomaly are detectable with the Lantern only by a study of significant responses secured by comparison with standard norms. Standards of right and wrong change with aperture size, brightness, brownish filters and color combination.
6. The test includes too many colors. The effect of the many undiagnostic colors is that of masking the significance of the total scores.
7. Results with the lantern show poor correspondence with standard tests for color vision.

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These conclusions should be construed as a criticism of the Lantern for the purpose for which it was designed, namely, a supplementary test, for railroading, administered by trained operators.